



초 대 장 to a lecture on the topic

“Assessment of Audio Systems for better speaker design“

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Date: 2010 년 3 월 2 일 화요일
Venue: 서울 팔레스호텔 (고속버스터미널 도보 5 분거리 , www.seoulpalace.co.kr
참조)
Time: 10:00 오전. -6:00 오후.
Language: English and Korean
Charge: free
Participants: Engineers active in research and development, production and quality
control of loudspeaker drivers and systems
Registration: 상진 미디어.
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Abstract:

The course addresses the evaluation of sound reproduction systems based on objective measurements. The dominant signal distortion found by comparing the reproduced sound with the electrical input are generated by the loudspeaker itself and interactions with the acoustical environment (room). The generation of signal distortion is modeled by linear, nonlinear and time-variant systems with lumped and distributed parameters. New measurement techniques based on those models are presented which assess electro-acoustical systems while reproducing test signals and music as well.

이 시간에는 객관적인 측정을 기초한 재생음의 평가에 대해 발표한다. 전기적 입력과 재생음의 비교에서 발견되는 주요한 신호왜곡은 스피커자체의 성능과 음향학적 환경과의 상호작용에 의해 발생된다. 이러한 신호왜곡의 발생은 집단적, 분배적변수를 갖는 선형적, 비선형적 또는 시간에 따라 변화하는 체계로 모형화 시켜준다. 시험신호및 음악을 재생하는 동안 전기-음향시스템을 평가하는 새로운 측정기술들을 이런 모형화들에 기초해 발표한다.

The course makes the relationship between symptoms and physical causes of the distortion more transparent and discusses the impact on the perceived sound quality. This knowledge is important for describing loudspeaker drive units and complete systems by a comprehensive set of data based on a minimal number of measurements.

이 과정을 통하여 왜곡에 대한 증상과 물리적요인과의 관계를 밝히고 음질에 주는 영향에 대해 논의한다. 이러한 지식은 가능한 소수의 측정치에 근거한 이해력있는 데이터로서 스피커유닛과 완적한 시스템을 묘사하는것이 중요하다.

The new methods and diagnostic tools are illustrated on drive units used in telecommunication, automotive and professional applications. The lecture is supplemented by practical sections giving each participant further opportunities for learning by doing.

새로운 방법과 진단도구들을 telecommunication, automotive, professional 한 응용분야에 사용되는 드라이브유닛에 적용시킨 예를 설명한다. 또한 강연자는 각 참석자들에게 이러한 방식으로 적용한 실질적인 부분들을 보충소개한다,

Content:

Modeling (모형화)

- Fundamentals - transduction, vibration, radiation
- Modeling - structures with lumped and distributed parameters
- Approximation - linear system and transfer function
- Large Signal Performance - thermal dynamics and nonlinearities
- Time-varying properties - influence of climate and aging

Measurements and Analysis (측정 과 분석)

- Persistent excitation - artificial and natural stimuli
- Monitored signals - electrical, mechanical and acoustical sensors
- Complex structures - digital and analogue components
- Sound field - measurements in the near and far field
- Interaction with the room - direct and diffuse sound part
- Measurement time - ultra-fast and long-term (power) testing
- Distortion analysis - linear and nonlinear components
- System identification - optimal fitting and parameter estimation
- Transformations - Fourier, Wavelet and psycho-acoustical processing
- Data compression - separation of unique and redundant information

Interpretation and Diagnostics (해석 과 진단)

- Interpretation - measured symptoms and physical causes
- Perception - audibility and impact on perceived sound quality
- Evaluation - selection of drive units for system design
- Specification - minimal but comprehensive set of data
- Tolerances - variation of parameters and influences